## SEQUENCE LISTING

```
<110> Walke, D. Wade
      Scoville, John
      Turner, C. Alexander Jr.
<120> Novel Human Alpha Macroglobulin Family Proteins and Polynucleotides
      Encoding the Same
<130> LEX-0282-USA
<150> US 60/255,566
<151> 2000-12-14
<160> 5
<170> FastSEQ for Windows Version 4.0
<210> 1
<211> 4338
<212> DNA
<213> homo sapiens
<400> 1
                                                                       ก์เป
atgcagggcc caccgctcct gaccgccgcc cacctcctct gcgtgtgcac cgccgcgctg
                                                                      123
geogtggete eegggeeteg gtttetggtg acageeceag ggateateag geoeggagga
                                                                      185
aatgtgacta ttggggtgga gcttctggaa cactgccctt cacaggtgac tgtgaaggcg
                                                                      240
gagetgetea agacageate aaaceteact gtetetgtee tggaageaga aggagtettt
                                                                      300
gaaaaaggct cttttaagac acttactctt ccatcactac ctctgaacag tgcagatgag
                                                                      360
atttatgagc tacgtgtaac cggacgtacc caggatgaga ttttattctc taatagtacc
                                                                      423
cgcttatcat ttgagaccaa gagaatatct gtcttcattc aaacagacaa ggccttatac
                                                                      430
aagccaaagc aagaagtgaa gtttcgcatt gttacactct tctcagattt taagccttac
                                                                      540
aaaacctctt taaacattct cattaaqqac cccaaatcaa atttgatcca acagtggttg
tcacaacaaa gtgatcttgg agtcatttcc aaaacttttc agctatcttc ccatccaata
                                                                      500
                                                                      660
cttqqtqact qqtctattca aqttcaaqtq aatgaccaga catattatca atcatttcag
                                                                      720
gtttcagaat atgtattacc aaaatttgaa gtgactttgc agacaccatt atattgttct
                                                                      780
atgaattcta agcatttaaa tggtaccatc acggcaaagt atacatatgg gaagccagtg
                                                                      340
aaaggagacg taacgcttac atttttacct ttatcctttt ggggaaagaa gaaaaatatt
                                                                      900
acaaaaacat ttaagataaa tggatctgca aacttctctt ttaatgatga agagatgaaa
                                                                      960
aatgtaatgg attetteaaa tggaetttet gaataeetgg atetatette eeetggaeea
                                                                     1020
qtaqaaattt taaccacaqt qacaqaatca gttacaggta tttcaagaaa tgtaagcact
                                                                     1030
aatqtqttct tcaaqcaaca tqattacatc attgagtttt ttgattatac tactgtcttg
                                                                     1140
aagccatctc tcaacttcac agccactgtg aaggtaactc gtgctgatgg caaccaactg
actcttgaag aaagaagaaa taatgtagtc ataacagtga cacagagaaa ctatactgag
                                                                     1200
                                                                     1260
tactqqaqcq qatctaacaq tqqaaatcag aaaatggaag ctgttcagaa aataaattat
                                                                     1300
actgtccccc aaagtggaac ttttaagatt gaattcccaa tcctggagga ttccagtgag
ctacagttga aggcctattt ccttggtagt aaaagtagca tggcagttca tagtctgttt
                                                                     1350
aagtotoota gtaagacata catocaacta aaaacaagag atgaaaatat aaaggtggga
                                                                     1440
tcgccttttg agttggtggt tagtggcaac aaacgattga aggagttaag ctatatggta
                                                                     1500
gtatccaggg gacagttggt ggctgtagga aaacaaaatt caacaatgtt ctctttaaca
                                                                     1560
ccagaaaatt cttggactcc aaaagcctgt gtaattgtgt attatattga agatgatggg
gaaattataa gtgatgttct aaaaattcct gttcagcttg tttttaaaaa taagataaag
                                                                     1630
                                                                     1740
ctatattgga gtaaagtgaa agctgaacca tctgagaaag tctctcttag gatctctgtg
acacagectg actecatagt tgggattgta getgttgaca aaagtgtgaa tetgatgaat
                                                                     1800
                                                                     1860
gcctctaatg atattacaat ggaaaatgtg gtccatgagt tggaacttta taacacagga
```

tattatttag gcatgttcat gaattetttt gcagtettte aggaatgtgg actetgggta

1910

```
ttgacagatg caaacctcac gaaggattat attgatggtg tttatgacaa tgcagaatat
                                                                    2040
qctqaqaqqt ttatqqaqqa aaatgaagga catattgtag atattcatga cttttctttg
ggtagcagtc cacatgtccg aaagcatttt ccagagactt ggatttggct agacaccaac
                                                                    2100
atgggttaca ggatttacca agaatttgaa gtaactgtac ctgattctat cacttcttgg
                                                                    2160
gtggctactg gttttgtgat ctctgaggac ctgggtcttg gactaacaac tactccagtg
                                                                    2220
                                                                    11280
gagetecaag cettecaace attiticati tittigaate tiecetaete tgitateaga
ggtgaagaat ttgctttgga aataactata ttcaattatt tgaaagatgc cactgaggtt
                                                                    2340
aaggtaatca ttgagaaaag tgacaaattt gatattctaa tgacttcaag tgaaataaat
                                                                    1400
gccacaggcc accagcagac ccttctggtt cccagtgagg atggggcaac tgttcttttt
                                                                    1460
                                                                    1500
cccatcaggc caacacatct gggagaaatt cctatcacag tcacagctct ttcacccact
gcttctgatg ctgtcaccca gatgatttta gtaaaggctg aaggaataga aaaatcatat
                                                                    2580
                                                                    1646
tcacaatcca tcttattaga cttgactgac aataggctac agagtaccct gaaaactttg
agtttctcat ttcctcctaa tacagtgact ggcagtgaaa gagttcagat cactgcaatt
                                                                    2700
ggagatgtte ttggteette cateaatgge ttageeteat tgatteggat geettatgge
                                                                    37EC
tgtggtgaac agaacatgat aaattttgct ccaaatattt acattttgga ttatctgact
                                                                    2820
aaaaagaaac aactgacaga taatttgaaa gaaaaagctc tttcatttat gaggcaaggt
                                                                    0880
taccagagag aactteteta teagagggaa gatggetett teagtgettt tgggaattat
                                                                    2940
                                                                    3000
gaccettetg ggageacttg gttgteaget tttgttttaa gatgttteet tgaageegat
ccttacatag atattgatca gaatgtgtta cacagaacat acacttggct taaaggacat
                                                                    3060
                                                                    3120
cagaaatcca acggtgaatt ttgggatcca ggaagagtga ttcatagtga gcttcaaggt
ggcaataaaa gtccagtaac acttacagcc tatattgtaa cttctctcct gggatataga
                                                                    3150
                                                                    3240
aagtatcagc ctaacattga tgtgcaagag tctatccatt ttttggagtc tgaattcagt
                                                                    3300
agaggaattt cagacaatta tactctagcc cttataactt atgcattgtc atcagtgggg
agtcctaaag cgaaggaagc tttgaatatg ctgacttgga gagcagaaca agaaggtggc
                                                                    3360
                                                                    3420
atgeaattet gggtgteate agagteeaaa etttetgaet eetggeagee aegeteeetg
                                                                    3480
gatattgaag ttgcagccta tgcactgctc tcacacttct tacaatttca gacttctgag
                                                                    3540
ggaatcccaa ttatgaggtg gctaagcagg caaagaaata gcttgggtgg ttttgcatct
actcaggata ccactgtggc tttaaaggct ctgtctgaat ttgcagccct aatgaataca
                                                                    3600
                                                                    3660
qaaaqqacaa atatccaagt gaccgtgacg gggcctagct caccaagtcc tgtaaagttt
                                                                    3720
ctgattgaca cacacaccg cttactcctt cagacagcag agcttgctgt ggtacagcca
                                                                    3730
atggcagtta atatttccqc aaatggtttt ggatttgcta tttgtcagct caatgttgta
tataatgtga aggettetgg gtettetaga agacgaagat etateeaaaa teaagaagee
                                                                    3840
tttgatttag atgttgctgt aaaagaaaat aaagatgatc tcaatcatgt ggatttgaat
                                                                    3900
gtgtgtacaa gcttttcggg cccgggtagg agtggcatgg ctcttatgga agttaaccta
                                                                    3960
                                                                    4010
ttaagtggct ttatggtgcc ttcagaagca atttctctga gcgagacagt gaagaaagtg
gaatatgatc atggaaaact caacctctat ttagattctg taaatgaaac ccagttttgt
                                                                    4030
gttaatattc ctgctgtgag aaactttaaa gtttcaaata cccaagatgc ttcagtgtcc
                                                                    4140
                                                                    4200
4260
ctqtcctcct qtgacctttg cagtgatgtc cagggctgcc gtccttgtga ggatggagct
traggetree attacete ttragteatt tttattttet gtttraaget tetgtaettt
                                                                    4320
                                                                    4338
atggaacttt ggctgtga
```

<210> 2

<211> 1445

<212> PRT

<213> homo sapiens

## <400> 2

 Met Gln Gly Pro Pro Leu Leu Thr Ala Ala His Leu Leu Cys Val Cys

 1
 5
 10
 15

 Thr Ala Ala Leu Ala Val Ala Pro Gly Pro Arg Phe Leu Val Thr Ala 20
 25
 30

 Pro Gly Ile Ile Arg Pro Gly Gly Asn Val Thr Ile Gly Val Glu Leu 35
 40
 45

 Leu Glu His Cys Pro Ser Gln Val Thr Val Lys Ala Glu Leu Lys 50
 55
 60

Thr 65	Ala	Ser	Asn	Leu	Thr 70	Val	Ser	Val	Leu	Glu 75	Ala	Glu	Gly	Val	Phe 80
	_			85					90					Leu 95	
Ser	Ala	Asp	Glu 100	Ile	Tyr	Glu	Leu	Arg 105	Val	Thr	Gly	Arg	Thr 110	Gln	Asp
		115					120					125		Lys	
	130					135					140			Lys	
145					150					155				Pro	160
				165					170					Leu 175	
			180					185					190	Lys	
		195					200					205		Gln	
	210					215					220			Glu	
225					230					235				Cys	240
				245					250					Thr 255	
_	_		260					265					270	Leu	
		275					280					285		Asn	
	290					295					300			Met	
305					310					315				Gly	320
				325					330					Ser 335	
Asn	Val		יוייוי	Asn	Va I	Pne	Phe	LAZS	(÷In	лlS	ASD	TAT.	тте		LJ L U
	-1		340					345					350		310
		Asp 355	340 Tyr	Thr	Thr	Val	Leu 360	345 Lys	Pro	Ser	Leu	Asn 365	350 Phe	Thr	
Thr	Val 370	Asp 355 Lys	340 Tyr Val	Thr Thr	Thr Arg	Val Ala 375	Leu 360 Asp	345 Lys Gly	Pro Asn	Ser Gln	Leu Leu 380	Asn 365 Thr	350 Phe Leu	Thr Glu	Glu
Thr Arg 385	Val 370 Arg	Asp 355 Lys Asn	340 Tyr Val Asn	Thr Thr Val	Thr Arg Val 390	Val Ala 375 Ile	Leu 360 Asp	345 Lys Gly Val	Pro Asn Thr	Ser Gln Gln 395	Leu Leu 380 Arg	Asn 365 Thr Asn	350 Phe Leu Tyr	Thr Glu Thr	Glu Glu 400
Thr Arg 385 Tyr	Val 370 Arg Trp	Asp 355 Lys Asn Ser	340 Tyr Val Asn Gly	Thr Thr Val Ser 405	Thr Arg Val 390 Asn	Val Ala 375 Ile Ser	Leu 360 Asp Thr	345 Lys Gly Val	Pro Asn Thr Gln 410	Ser Gln Gln 395 Lys	Leu Leu 380 Arg Met	Asn 365 Thr Asn Glu	350 Phe Leu Tyr Ala	Thr Glu Thr Val 415	Glu Glu 400 Gln
Thr Arg 385 Tyr	Val 370 Arg Trp	Asp 355 Lys Asn Ser	340 Tyr Val Asn Gly Tyr 420	Thr Thr Val Ser 405 Thr	Thr Arg Val 390 Asn Val	Val Ala 375 Ile Ser Pro	Leu 360 Asp Thr Gly	345 Lys Gly Val Asn Ser 425	Pro Asn Thr Gln 410 Gly	Ser Gln Gln 395 Lys Thr	Leu Leu 380 Arg Met	Asn 365 Thr Asn Glu Lys	350 Phe Leu Tyr Ala Ile 430	Thr Glu Thr Val 415 Glu	Glu Glu 400 Gln Phe
Thr Arg 385 Tyr Lys Pro	Val 370 Arg Trp Ile	Asp 355 Lys Asn Ser Asn Leu 435	340 Tyr Val Asn Gly Tyr 420 Glu	Thr Thr Val Ser 405 Thr Asp	Thr Arg Val 390 Asn Val Ser	Val Ala 375 Ile Ser Pro Ser	Leu 360 Asp Thr Gly Gln Glu 440	345 Lys Gly Val Asn Ser 425 Leu	Pro Asn Thr Gln 410 Gly Gln	Ser Gln Gln 395 Lys Thr Leu	Leu 180 Arg Met Phe	Asn 365 Thr Asn Glu Lys Ala 445	350 Phe Leu Tyr Ala Ile 430 Tyr	Thr Glu Thr Val 415 Glu Phe	Glu Glu 400 Gln Phe Leu
Thr Arg 385 Tyr Lys Pro Gly	Val 370 Arg Trp Ile Ile Ser 450	Asp 355 Lys Asn Ser Asn Leu 435 Lys	340 Tyr Val Asn Gly Tyr 420 Glu Ser	Thr Thr Val Ser 405 Thr Asp Ser	Thr Arg Val 390 Asn Val Ser Met	Val Ala 375 Ile Ser Pro Ser Ala 455	Leu 360 Asp Thr Gly Gln Glu 440 Val	345 Lys Gly Val Asn Ser 425 Leu His	Pro Asn Thr Gln 410 Gly Gln Ser	Ser Gln Gln 395 Lys Thr Leu Leu	Leu 380 Arg Met Phe Lys Phe 460	Asn 365 Thr Asn Glu Lys Ala 445 Lys	350 Phe Leu Tyr Ala Ile 430 Tyr Ser	Thr Glu Thr Val 415 Glu Phe	Glu Glu 400 Gln Phe Leu Ser
Thr Arg 385 Tyr Lys Pro Gly Lys 465	Val 370 Arg Trp Ile Ile Ser 450 Thr	Asp 355 Lys Asn Ser Asn Leu 435 Lys	340 Tyr Val Asn Gly Tyr 420 Glu ser Ile	Thr Thr Val Ser 405 Thr Asp Ser Gln	Thr Arg Val 390 Asn Val Ser Met Leu 470	Val Ala 375 Ile Ser Pro Ser Ala 455 Lys	Leu 360 Asp Thr Gly Gln Glu 440 Val Thr	345 Lys Gly Val Asn Ser 425 Leu His	Pro Asn Thr Gln 410 Gly Gln Ser Asp	Ser Gln Gln 395 Lys Thr Leu Leu Glu 475	Leu Leu 380 Arg Met Phe Lys Phe 460 Asn	Asn 365 Thr Asn Glu Lys Ala 445 Lys	350 Phe Leu Tyr Ala Ile 430 Tyr Ser Lys	Thr Glu Thr Val 415 Glu Phe Pro Val	Glu Glu 400 Gln Phe Leu Ser Gly 480
Thr Arg 385 Tyr Lys Pro Gly Lys 465 Ser	Val 370 Arg Trp Ile Ile Ser 450 Thr	Asp 355 Lys Asn Ser Asn Leu 435 Lys Tyr	340 Tyr Val Asn Gly Tyr 420 Glu Ser Ile Glu	Thr Thr Val Ser 405 Thr Asp Ser Gln Leu 485	Thr Arg Val 390 Asn Val Ser Met Leu 470 Val	Val Ala 375 Ile Ser Pro Ser Ala 455 Lys Val	Leu 360 Asp Thr Gly Gln Glu 440 Val Thr	345 Lys Gly Val Asn Ser 425 Leu His Arg	Pro Asn Thr Gln 410 Gly Gln Ser Asp Asn 490	Ser Gln Gln 395 Lys Thr Leu Leu Glu 475 Lys	Leu  Leu  380  Arg  Met  Phe  Lys  Phe  460  Asn  Arg	Asn 365 Thr Asn Glu Lys Ala 445 Lys Ile Leu	350 Phe Leu Tyr Ala Ile 430 Tyr Ser Lys	Thr Glu Thr Val 415 Glu Phe	Glu Glu 400 Gln Phe Leu Ser Gly 480 Leu

_		cm1				-	cm.1	_	~ 7		~	cr.	cm 1	_	Ŧ .
Asn	Ser	Thr 515	Met	Phe	Ser	Leu	Thr 520	Pro	Glu	Asn	Ser	Trp 525	Thr	Pro	Lys
Ala	Cys 530	Val	Ile	Val	Tyr	Tyr 535	Ile	Glu	Asp	Asp	Gly 540	Glu	Ile	Ile	Ser
Asp 545	Val	Leu	Lys	Ile	Pro 550	Val	Gln	Leu	Val	Phe 555	Lys	Asn	Lys	Ile	Lys 560
Leu	Tyr	Trp	Ser	Lys 565	Val	Lys	Ala	Glu	Pro 570	Ser	Glu	Lys	Val	Ser 575	Leu
Arg	Ile	Ser	Val 580		Gln	Pro	Asp	Ser 585		Val	Gly	Ile	Val 590	Ala	Val
Asp	Lys	Ser 595	Val	Asn	Leu	Met	Asn 600	Ala	Ser	Asn	Asp	Ile 605	Thr	Met	Glu
Asn	Val 610		His	Glu	Leu	Glu 615		Tyr	Asn	Thr	Gly 620	Tyr	Tyr	Leu	Gly
Met 625		Met	Asn	Ser	Phe 630		Val	Phe	Gln	Glu 635		Gly	Leu	Trp	Val 640
	Thr	Asp	Ala	Asn 645		Thr	Lys	Asp	Tyr 650		Asp	Gly	Val	Tyr 655	
Asn	Ala	Glu	Tyr 660		Glu	Arg	Phe	Met 665		Glu	Asn	Glu	Gly 670		Ile
Val	Asp	Ile 675	His	Asp	Phe	Ser	Leu 680		Ser	Ser	Pro	His 685		Arg	Lys
His	Phe 690		Glu	Thr	Trp	Ile 695		Leu	Asp	Thr	Asn 700		Gly	Tyr	Arg
Ile 705		Gln	Glu	Phe	Glu 710		Thr	Val	Pro	Asp 715	Ser	Ile	Thr	Ser	Trp 720
	Ala	Thr	Gly	Phe 725		Ile	Ser	Glu	Asp 730	Leu	Gly	Leu	Gly	Leu 735	Thr
Thr	Thr	Pro	Val 740	Glu	Leu	Gln	Ala	Phe	Gln	Pro	Phe	Phe	Ile 750	Phe	Leu
Asn	Leu	Pro 755	Tyr	Ser	Val	Ile	Arg 760	Gly	Glu	Glu	Phe	Ala 765	Leu	Glu	Ile
Thr	Ile 770	Phe	Asn	Tyr	Leu	Lys 775	Asp	Ala	Thr	Glu	Val 730	Lys	Val	Ile	Ile
Glu 785	Lys	Ser	Asp	Lys	Phe	Asp	Ile	Leu	Met	Thr	Ser	Ser	Glu	Ile	
Ala	_				790					795					800
	Thr	Gly	His	Gln 805		Thr						Glu	Asp		
Thr		Leu	His Phe 820	805 Pro	Gln Ile	Arg	Leu Pro	Leu Thr	Val 310 His	Pro Leu	Ser Gly	Glu	Ile	Gly 815 Pro	Ala
	Val	Leu	Phe	805 Pro	Gln Ile	Arg	Leu Pro	Leu Thr 825	Val 310 His	Pro Leu	Ser Gly	Glu	Ile 830	Gly 815 Pro	Ala
Thr	Val Val	Leu Thr 835	Phe 820	805 Pro Leu	Gln Ile Ser	Arg Pro	Leu Pro Thr 840	Leu Thr 825 Ala	Val 310 His	Pro Leu Asp	Ser Gly Ala	Glu Val 845	Ile 830 Thr	Gly 815 Pro Gln	Ala Ile Met
Thr	Val Val Leu 850	Leu Thr 835 Val	Phe 820 Ala	805 Pro Leu Ala	Gln Ile Ser Glu	Arg Pro Gly 855	Leu Pro Thr 840 Ile	Leu Thr 825 Ala Glu	Val 310 His Ser Lys	Pro Leu Asp Ser	Ser Gly Ala Tyr 360	Glu Val 345 Ser	Ile 830 Thr	Gly 815 Pro Gln Ser	Ala Ile Met Ile
Thr Ile Leu 865	Val Val Leu 850 Leu	Leu Thr 835 Val Asp	Phe 820 Ala Lys	805 Pro Leu Ala Thr	Gln Ile Ser Glu Asp 870	Arg Pro Gly 855 Asn	Leu Pro Thr 840 Ile Arg	Leu Thr 825 Ala Glu Leu	Val 310 His Ser Lys Gln	Pro Leu Asp Ser Ser 875	Ser Gly Ala Tyr 360 Thr	Glu Val 845 Ser Leu	Ile 830 Thr Gln Lys	Gly 815 Pro Gln Ser	Ala Ile Met Ile Leu 880
Thr Ile Leu 865 Ser	Val Val Leu 850 Leu Phe	Leu Thr 835 Val Asp	Phe 820 Ala Lys Leu	805 Pro Leu Ala Thr Pro 885	Gln Ile Ser Glu Asp 870 Pro	Arg Pro Gly 855 Asn	Leu Pro Thr 840 Ile Arg	Leu Thr 825 Ala Glu Leu Val	Val 810 His Ser Lys Gln Thr 890	Pro Leu Asp Ser Ser 875 Gly	Ser Gly Ala Tyr 860 Thr	Glu Val 345 Ser Leu Glu	Ile 830 Thr Gln Lys	Gly 815 Pro Gln Ser Thr Val 895	Ala Ile Met Ile Leu 880 Gln
Thr Ile Leu 865 Ser Ile	Val Val Leu 850 Leu Phe Thr	Leu Thr 835 Val Asp Ser	Phe 820 Ala Lys Leu Phe	805 Pro Leu Ala Thr Pro 885 Gly	Gln Ile Ser Glu Asp 870 Pro Asp	Arg Pro Gly 855 Asn Asn Val	Leu Pro Thr 840 Ile Arg Thr	Leu Thr 825 Ala Glu Leu Val Gly 905	Val 810 His Ser Lys Gln Thr 890 Pro	Pro Leu Asp Ser Ser 875 Gly Ser	Ser Gly Ala Tyr 360 Thr Ser	Glu Val 345 Ser Leu Glu Asn	Ile 830 Thr Gln Lys Arg Gly 910	Gly 815 Pro Gln Ser Thr Val 895 Leu	Ala Ile Met Ile Leu 880 Gln Ala
Thr Ile Leu 865 Ser Ile Ser	Val Val Leu 850 Leu Phe Thr	Leu Thr 835 Val Asp Ser Ala Ile 915	Phe 820 Ala Lys Leu Phe Ile 900	805 Pro Leu Ala Thr Pro 885 Gly Met	Gln Ile Ser Glu Asp 870 Pro Asp	Arg Pro Gly 855 Asn Asn Val	Leu Pro Thr 840 Ile Arg Thr Leu Gly 920	Leu Thr 825 Ala Glu Leu Val Gly 905 Cys	Val 810 His Ser Lys Gln Thr 890 Pro	Pro Leu Asp Ser Ser 875 Gly Ser Glu	Ser Gly Ala Tyr 360 Thr Ser Ile Gln	Glu Val 345 Ser Leu Glu Asn 925	Ile 830 Thr Gln Lys Arg Gly 910 Met	Gly 815 Pro Gln Ser Thr Val 895 Leu	Ala Ile Met Ile Leu 880 Gln Ala Asn
Thr Ile Leu 865 Ser Ile Ser	Val Val Leu 850 Leu Phe Thr Leu Ala 930	Leu Thr 835 Val Asp Ser Ala Ile 915 Pro	Phe 820 Ala Lys Leu Phe Ile 900 Arg	805 Pro Leu Ala Thr Pro 885 Gly Met	Gln Ile Ser Glu Asp 870 Pro Asp Pro	Arg Pro Gly 855 Asn Asn Val Tyr Ile 935	Leu Pro Thr 840 Ile Arg Thr Leu Gly 920 Leu	Leu Thr 825 Ala Glu Leu Val Gly 905 Cys Asp	Val 310 His Ser Lys Gln Thr 390 Pro	Pro Leu Asp Ser Ser 875 Gly Ser Glu Leu	Ser Gly Ala Tyr 860 Thr Ser Ile Gln Thr 940	Glu Val 345 Ser Leu Glu Asn Asn 925 Lys	Ile 830 Thr Gln Lys Arg Gly 910 Met	Gly 815 Pro Gln Ser Thr Val 895 Leu Ile	Ala Ile Met Ile Leu 880 Gln Ala Asn Gln

	Arg Glu	965				970					975	
Phe Gly	Asn Tyr 980	Asp Pr	o Ser	Gly	Ser 985	Thr	Trp	Leu	Ser	Ala 990	Phe	Val
Leu Arg	Cys Phe 995	Leu Gl	u Ala	Asp 1000		Tyr.	Ile	Asp	11e 1005		Gln	Asn
Val Leu 1010		Thr Ty	r Thr 1015		Leu	Lys	Gly	His 1020		Lys	Ser	Asn
Gly Glu 1025	Phe Trp		o Gly	Arg	Val	Ile	His 1035		Glu	Leu	Gln	Gly 1040
Gly Asn	Lys Ser	Pro Va 1045	al Thr	Leu		Ala 1050		Ile	Val	Thr	Ser 1055	
Leu Gly	Tyr Arg		r Gln	Pro	Asn 1055		Asp	Val	Gln	Glu 1070		Ile
His Phe	Leu Glu 1075	Ser Gl	u Phe	Ser 1080		Gly	Ile	Ser	Asp 1085		Tyr	Thr
Leu Ala 1090		Thr Ty	r Ala 1095		Ser	Ser	Val	Gly 1100		Pro	Lys	Ala
Lys Glu . 1105	Ala Leu		et Leu	Thr	Trp	Arg	Ala 1115		Gln	Glu	Gly	Gly 1120
Met Gln	Phe Trp			Glu		Lys 1130	Leu		Asp	Ser	Trp	Gln
Pro Arg	Ser Leu 114	_	e Glu	Val	Ala 1145		Tyr	Ala	Leu	Leu 1150		His
Phe Leu	Gln Phe 1155	Gln Th	ır Ser	Glu 1160		Ile	Pro	Ile	Met 1165		Trp	Leu
Ser Arg 1170		Asn Se	er Leu 1175		Gly	Phe	Alā	Ser 1180		Gln	Asp	Thr
Thr Val . 1185	Ala Leu		a Leu .90	Ser	Glu	Phe	Ala 1195		Leu	Met	Asn	Thr 1200
Glu Arg	Thr Asn	Ile Gl 1205	n Val	Thr		Thr 1210		Pro	Ser	Ser	Pro 1215	
D 17-1		T 011 T1	a 7 am	Thr	His	Acn	Ara	Leu	Leu	Leu	Gln	Thr
PIO Val	Lys Phe 122		e Asp	1111	1225		3			1230		
Ala Glu	122	0			1225 Met	•				1230 Ser	)	Asn
Ala Glu	122 Leu Ala 1235 Gly Phe	O Val Va	al Gln	Pro 1240 Gln	1225 Met )	Ala	Val	Asn	Ile 1245 Tyr	1230 Ser	) Ala	
Ala Glu Gly Phe	122 Leu Ala 1235 Gly Phe	O Val Va Ala Il Ser Ar	al Gln e Cys 1255	Pro 1240 Gln	1225 Met ) Leu	Ala Asn	Val Val	Asn Val 1260 Gln	Ile 1245 Tyr	1230 Ser Asn	) Ala Val	Lys
Ala Glu Gly Phe 1250 Ala Ser	122 Leu Ala 1235 Gly Phe Gly Ser	Val Va Ala II Ser Ar	al Gln e Cys 1255 gg Arg	Pro 1240 Gln Arg	1225 Met ) Leu Arg	Ala Asn Ser	Val Val Ile 1275 Lys	Asn Val 1260 Gln	Ile 1245 Tyr ) Asn	1230 Ser Asn Gln	) Ala Val Glu	Lys Ala 1280 His
Ala Glu Gly Phe 1250 Ala Ser 1265	122 Leu Ala 1235 Gly Phe Gly Ser Leu Asp	Val Val Val Val Ala II Ser Ar 12 Val Al 1285 Val Cy	e Cys 1255 1270 1270 1270	Pro 1240 Gln 5 Arg Lys	1225 Met Leu Arg	Ala Asn Ser Asn 1290 Ser	Val Val Ile 1275 Lys	Asn Val 1260 Gln Asp	Ile 1245 Tyr Asn Asp	1230 Ser Asn Gln Leu	Ala Val Glu Asn 1295 Ser	Lys Ala 1280 His
Ala Glu  Gly Phe 1250  Ala Ser 1265  Phe Asp  Val Asp  Met Ala	122 Leu Ala 1235 Gly Phe Gly Ser Leu Asp Leu Asn 130	Val Val Val Val Ala II Ser Ar 12 Val Al 1285 Val Cy	e Cys 1255 1270 270 a Val	Pro 1240 Gln Arg Lys	1225 Met Leu Arg Glu Phe 1305 Leu	Ala Asn Ser Asn 1290 Ser	Val Val Ile 1275 Lys Gly	Asn Val 1260 Gln Asp Pro	Ile 1245 Tyr Asn Asp	1230 Ser Asn Gln Leu Arg 1310 Val	Val Glu Asn 1295 Ser	Lys Ala 1280 His Gly
Ala Glu  Gly Phe 1250  Ala Ser 1265  Phe Asp  Val Asp  Met Ala	Leu Ala 1235 Gly Phe Gly Ser Leu Asp Leu Asn 1300 Leu Met 1315 Ile Ser	Val Val Val Val Ala II  Ser Ar 12 Val Al 1285 Val Cy Glu Va	e Cys 1255 1255 1270 12 Val 12 Thr	Pro 1240 Gln 5 Arg Lys Ser Leu 1320 Thr	1225 Met Leu Arg Glu Phe 1305 Leu	Ala Asn Ser Asn 1290 Ser	Val Val Ile 1275 Lys Gly	Asn Val 1260 Gln Asp Pro	Ile 1245 Tyr Asn Asp Gly Met 1325 Glu	1230 Ser Asn Gln Leu Arg 1310 Val	Ala Val Glu Asn 1295 Ser Pro	Lys Ala 1280 His Gly Ser
Ala Glu  Gly Phe 1250 Ala Ser 1265 Phe Asp  Val Asp  Met Ala  Glu Ala 1330 Gly Lys	Leu Ala 1235 Gly Phe Gly Ser Leu Asp Leu Asn 1300 Leu Met 1315 Ile Ser	Val Val Val Ala II Ser Ar 12 Val Al 1285 Val Cy Glu Va Leu Se	al Gln Le Cys 1255 Tg Arg 270 La Val Vs Thr al Asn er Glu 1335	Pro 1240 Gln 5 Arg Lys Ser Leu 1320 Thr	1225 Met Leu Arg Glu Phe 1305 Leu	Ala Asn Ser Asn 1290 Ser Ser	Val Val Ile 1275 Lys Gly Gly Lys	Asn Val 1260 Gln Asp Pro Phe Val 1340 Glu	Ile 1245 Tyr Asn Asp Gly Met 1325 Glu	1230 Ser Asn Gln Leu Arg 1310 Val	Ala Val Glu Asn 1295 Ser Pro Asp	Lys Ala 1280 His Gly Ser His
Ala Glu  Gly Phe 1250 Ala Ser 1265 Phe Asp  Val Asp  Met Ala  Glu Ala 1330	Leu Ala 1235 Gly Phe Gly Ser Leu Asp Leu Asn 1300 Leu Met 1315 Ile Ser Leu Asn	Val Val Val Ala II Ser Ar 12 Val Al 1285 Val Cy Glu Va Leu Se Leu Ty	al Gln e Cys 1255 g Arg 70 a Val 75 Thr al Asn er Glu 1339 77 Leu	Pro 1240 Gln 5 Arg Lys Ser Leu 1320 Thr 5	1225 Met Leu Arg Glu Phe 1305 Leu Val	Ala Asn Ser Asn 1290 Ser Lys Val	Val Val Ile 1275 Lys Gly Gly Lys Asn 1355 Val	Asn Val 1260 Gln Asp Pro Phe Val 1340 Glu	Ile 1245 Tyr Asn Asp Gly Met 1325 Glu	1230 Ser Asn Gln Leu Arg 1310 Val Tyr	Ala Val Glu Asn 1295 Ser Pro Asp	Lys Ala 1280 His Gly Ser His Cys 1360 Asp
Ala Glu  Gly Phe 1250 Ala Ser 1265 Phe Asp  Val Asp  Met Ala  Glu Ala 1330 Gly Lys 1345	Leu Ala 1235 Gly Phe Gly Ser Leu Asp Leu Asn 1300 Leu Met 1315 Ile Ser Leu Asn	Val Val Val Val Ala II  Ser Ar 12  Val Al 1285  Val Cy  Glu Val Leu Se  Leu Ty  13  Ala Val 1365  Ile Val	al Gln e Cys 1255 g Arg 70 a Val ws Thr al Asn er Glu 1335 cr Leu 550 al Arg	Pro 1240 Gln 5 Arg Lys Ser Leu 1320 Thr 5 Asp	1225 Met Leu Arg Glu Phe 1305 Leu Val Ser	Ala Asn Ser Asn 1290 Ser Lys Val Lys 1370 Glu	Val Val Ile 1275 Lys Gly Gly Lys Asn 1355 Val	Asn Val 1260 Gln Asp Pro Phe Val 1340 Glu Ser	Ile 1245 Tyr Asn Asp Gly Met 1325 Glu Thr	1230 Ser Asn Gln Leu Arg 1310 Val Tyr Gln	Ala Val Glu Asn 1295 Ser Pro Asp Phe Gln 1375 Ala	Lys Ala 1280 His Gly Ser His Cys 1360 Asp

Asp Val Gln Gly Cys Arg Pro Cys Glu Asp Gly Ala Ser Gly Ser His 1420 1410 1415 His His Ser Ser Val Ile Phe Ile Phe Cys Phe Lys Leu Leu Tyr Phe 1435 1440 1425 1430 Met Glu Leu Trp Leu 1445

<210> 3 <211> 4287 <212> DNA <213> homo sapiens

## <400> 3

atgragger carrected garagered carrectet gratterar regregated БÜ 120 gccgtggctc ccgggcctcg gtttctggtg acagccccag ggatcatcag gcccggagga aatgtgacta ttggggtgga gcttctggaa cactgccctt cacaggtgac tgtgaaggcg 180 240 gagetgetea agacageate aaaceteact gtetetgtee tggaageaga aggagtettt gaaaaaggct cttttaagac acttactctt ccatcactac ctctgaacag tgcagatgag 300 360 atttatgage tacgtgtaac cggacgtacc caggatgaga ttttattctc taatagtacc cgcttatcat ttgagaccaa gagaatatct gtcttcattc aaacagacaa ggccttatac 420 aagccaaagc aagaagtgaa gtttcgcatt gttacactct tctcagattt taagccttac 480 54() aaaacctctt taaacattct cattaaggac cccaaatcaa atttgatcca acagtggttg 600 tcacaacaaa gtgatcttgg agtcatttcc aaaacttttc agctatcttc ccatccaata 660 cttqqtqact qgtctattca agttcaagtg aatgaccaga catattatca atcatttcag gtttcagaat atgtattacc aaaatttgaa gtgactttgc agacaccatt atattgttct 720 780 atgaattcta agcatttaaa tggtaccatc acggcaaagt atacatatgg gaagccagtg 840 aaaggagacg taacgcttac atttttacct ttatcctttt ggggaaagaa gaaaaatatt 900 acaaaaacat ttaagataaa tggatctgca aacttctctt ttaatgatga agagatgaaa 950 aatgtaatgg attetteaaa tggaetttet gaataeetgg atetatette eeetggaeea 1000 qtagaaattt taaccacagt gacagaatca gttacaggta tttcaagaaa tgtaagcact aatgtgttct tcaagcaaca tgattacatc attgagtttt ttgattatac tactgtcttg 1050 1140 aagccatctc tcaacttcac agccactgtg aaggtaactc gtgctgatgg caaccaactg 1200 actcttqaaq aaaqaaqaaa taatgtagtc ataacagtga cacagagaaa ctatactgag tactggagcg gatctaacag tggaaatcag aaaatggaag ctgttcagaa aataaattat 1260 1320 actqtccccc aaagtggaac ttttaagatt gaattcccaa tcctggagga ttccagtgag 1390 ctacagttga aggcctattt ccttggtagt aaaagtagca tggcagttca tagtctgttt aagtctccta gtaagacata catccaacta aaaacaagag atgaaaatat aaaggtggga 1440 1500 tcgccttttg agttggtggt tagtggcaac aaacgattga aggagttaag ctatatggta gtatccaggg gacagttggt ggctgtagga aaacaaaatt caacaatgtt ctctttaaca 1560 ccagaaaatt cttggactcc aaaagcctgt gtaattgtgt attatattga agatgatggg 1620 gaaattataa gtgatgttct aaaaattcct gttcagcttg tttttaaaaa taagataaag 1680 1740 ctatattgga gtaaagtgaa agctgaacca tctgagaaag tctctcttag gatctctgtg 1800 acacagoctg actocatagt tgggattgta gotgttgaca aaagtgtgaa totgatgaat gcctctaatg atattacaat ggaaaatgtg gtccatgagt tggaacttta taacacagga 1860 1900 tattatttag gcatgttcat gaattctttt gcagtctttc aggaatgtgg actctgggta 1930 ttgacagatg caaacctcac gaaggattat attgatggtg tttatgacaa tgcagaatat gctgagaggt ttatggagga aaatgaagga catattgtag atattcatga cttttctttg 2040 ggtagcagtc cacatgtccg aaagcatttt ccagagactt ggatttggct agacaccaac 2100 2160 atgggttaca ggatttacca agaatttgaa gtaactgtac ctgattctat cacttcttgg gtggctactg gttttgtgat ctctgaggac ctgggtcttg gactaacaac tactccagtg 2220 gagetecaag cettecaace attitteatt titttgaate tieeetaete tgttateaga 2280 ggtgaagaat ttgctttgga aataactata ttcaattatt tgaaagatgc cactgaggtt 2340 2400 aaggtaatca ttgagaaaag tgacaaattt gatattctaa tgacttcaag tgaaataaat 2460 qccacaggcc accagcagac ccttctggtt cccagtgagg atggggcaac tgttcttttt 2520 cccatcaggc caacacatct gggagaaatt cctatcacag tcacagctct ttcacccact gcttctgatg ctgtcaccca gatgatttta gtaaaggctg aaggaataga aaaatcatat 2580

tcacaatcca	tcttattaga	cttgactgac	aataggctac	agagtaccct	gaaaactttg	2540
agtttctcat	ttcctcctaa	tacagtgact	ggcagtgaaa	gagttcagat	cactgcaatt	2700
ggagatgttc	ttggtccttc	catcaatggc	ttagcctcat	tgattcggat	gccttatggc	2760
tgtggtgaac	agaacatgat	aaattttgct	ccaaatattt	acattttgga	ttatctgact	2820
aaaaagaaac	aactgacaga	taatttgaaa	gaaaaagctc	tttcatttat	gaggcaaggt	2380
taccagagag	aacttctcta	tcagagggaa	gatggctctt	tcagtgcttt	tgggaattat	2940
gacccttctg	ggagcacttg	gttgtcagct	tttgttttaa	gatgtttcct	tgaagccgat	3000
ccttacatag	atattgatca	gaatgtgtta	cacagaacat	acacttggct	taaaggacat	3060
cagaaatcca	acggtgaatt	ttgggatcca	ggaagagtga	ttcatagtga	gcttcaaggt	3120
ggcaataaaa	gtccagtaac	acttacagcc	tatattgtaa	cttctctcct	gggatataga	3180
aagtatcagc	ctaacattga	tgtgcaagag	tctatccatt	ttttggagtc	tgaattcagt	3240
		tactctagcc				3300
agtcctaaag	cgaaggaagc	tttgaatatg	ctgacttgga	gagcagaaca	agaaggtggc	3360
atgcaattct	gggtgtcatc	agagtccaaa	ctttctgact	cctggcagcc	acgctccctg	3420
gatattgaag	ttgcagccta	tgcactgctc	tcacacttct	tacaatttca	gacttctgag	3480
ggaatcccaa	ttatgaggtg	gctaagcagg	caaagaaata	gcttgggtgg	ttttgcatct	3540
actcaggata	ccactgtggc	tttaaaggct	ctgtctgaat	ttgcagccct	aatgaataca	3600
gaaaggacaa	atatccaagt	gaccgtgacg	gggcctagct	caccaagtcc	tcttgctgtg	3660
gtacagccaa	tggcagttaa	tatttccgca	aatggttttg	gatttgctat	ttgtcagctc	3720
aatgttgtat	ataatgtgaa	ggcttctggg	tcttctagaa	gacgaagatc	tatccaaaat	3780
caagaagcct	ttgatttaga	tgttgctgta	aaagaaaata	aagatgatct	caatcatgtg	3840
gatttgaatg	tgtgtacaag	cttttcgggc	ccgggtagga	gtggcatggc	tcttatggaa	3900
gttaacctat	taagtggctt	tatggtgcct	tcagaagcaa	tttctctgag	cgagacagtg	3960
aagaaagtgg	aatatgatca	tggaaaactc	aacctctatt	tagattctgt	aaatgaaacc	4020
cagttttgtg	ttaatattcc	tgctgtgaga	aactttaaag	tttcaaatac	ccaagatgct	4030
tcagtgtcca	tagtggatta	ctatgagcca	aggagacagg	cggtgagaag	ttacaactct	4140
gaagtgaagc	tgtcctcctg	tgacctttgc	agtgatgtcc	agggctgccg	tccttgtgag	4200
gatggagctt	caggctccca	tcatcactct	tcagtcattt	ttattttctg	tttcaagctt	4260
ctgtacttta	tggaactttg	gctgtga				4287

<210> 4

<211> 1428

<212> PRT

<213> homo sapiens

## <400> 4

Met Gln Gly Pro Pro Leu Leu Thr Ala Ala His Leu Leu Cys Val Cys 5 10 Thr Ala Ala Leu Ala Val Ala Pro Gly Pro Arg Phe Leu Val Thr Ala 25 Pro Gly Ile Ile Arg Pro Gly Gly Asn Val Thr Ile Gly Val Glu Leu 40 Leu Glu His Cys Pro Ser Gln Val Thr Val Lys Ala Glu Leu Leu Lys 55 60 Thr Ala Ser Asn Leu Thr Val Ser Val Leu Glu Ala Glu Gly Val Phe 70 75 Glu Lys Gly Ser Phe Lys Thr Leu Thr Leu Pro Ser Leu Pro Leu Asn 85 90 Ser Ala Asp Glu Ile Tyr Glu Leu Arg Val Thr Gly Arg Thr Gln Asp 105 110 Glu Ile Leu Phe Ser Asn Ser Thr Arg Leu Ser Phe Glu Thr Lys Arg 120 Ile Ser Val Phe Ile Gln Thr Asp Lys Ala Leu Tyr Lys Pro Lys Gln 140 135 Glu Val Lys Phe Arg Ile Val Thr Leu Phe Ser Asp Phe Lys Pro Tyr 150 155 160 145

T															
ьуs	Thr	Ser	Leu	Asn 165	Ile	Leu	Ile	Lys	Asp 170	Pro	Lys	Ser	Asn	Leu 175	Ile
Gln	Gln	Trp	Leu 180	Ser	Gln	Gln	Ser	Asp 185	Leu	Gly	Val	Ile	Ser 190	Lys	Thr
Phe	Gln	Leu 195	Ser	Ser	His	Pro	Ile 200	Leu	Gly	Asp	Trp	Ser 205	Ile	Gln	Val
Gln	Val 210	Asn	Asp	Gln	Thr	Tyr 215	Tyr	Gln	Ser	Phe	Gln 220	Val	Ser	Glu	Tyr
Val 225	Leu	Pro	Lys	Phe	Glu 230	Val	Thr	Leu	Gln	Thr 235	Pro	Leu	Tyr	Cys	Ser 240
Met	Asn	Ser	Lys	His 245	Leu	Asn	Gly	Thr	Ile 250	Thr	Ala	Lys	Tyr	Thr 255	Tyr
Gly	Lys	Pro	Val 260	Lys	Gly	Asp	Val	Thr 265	Leu	Thr	Phe	Leu	Pro 270	Leu	Ser
Phe	Trp	Gly 275	Lys	Lys	Lys	Asn	Ile 280	Thr	Lys	Thr	Phe	Lys 285	Ile	Asn	Gly
Ser	Ala 290	Asn	Phe	Ser	Phe	Asn 295	Asp	Glu	Glu	Met	Lys 300	Asn	Val	Met	Asp
Ser 305	Ser	Asn	Gly	Leu	Ser 310	Glu	Tyr	Leu	Asp	Leu 315	Ser	Ser	Pro	Gly	Pro 320
Val	Glu	Ile	Leu	Thr 325	Thr	Val	Thr	Glu	Ser 330	Val	Thr	Gly	Ile	Ser 335	Arg
			340		Val			345					350		
Phe	Phe	Asp 355	Tyr	Thr	Thr	Val	Leu 360	Lys	Pro	Ser	Leu	Asn 365	Phe	Thr	Ala
Thr	Val 370	Lys	Val	Thr	Arg	Ala 375	Asp	Gly	Asn	Gln	Leu 380	Thr	Leu	Glu	Glu
Arg 385	Arg	Asn	Asn	Val	Val 390	Ile	Thr	Val	Thr	Gln 395	Arg	Asn	Tyr	Thr	Glu 400
(T)		0	C137	Sar	Asn	Ser	Gly	Asn	Gln	Lys	Met	Glu	Ala	Val	Gln
				405					410				_	415	
Lys	Ile	Asn	Tyr 420	405 Thr	Val	Pro		Ser 425	Gly				430	415 Glu	
Lys Pro	Ile Ile	Asn Leu 435	Tyr 420 Glu	405 Thr Asp	Val Ser	Pro Ser	Glu 440	Ser 425 Leu	Gly Gln	Leu	Lys	Ala 445	430 Tyr	415 Glu Phe	Leu
Lys Pro Gly	Ile Ile Ser 450	Asn Leu 435 Lys	Tyr 420 Glu Ser	405 Thr Asp Ser	Val Ser Met	Pro Ser Ala 455	Glu 440 Val	Ser 425 Leu His	Gly Gln Ser	Leu Leu	Lys Phe 460	Ala 445 Lys	430 Tyr Ser	415 Glu Phe Pro	Leu Ser
Lys Pro Gly Lys 465	Ile Ile Ser 450 Thr	Asn Leu 435 Lys Tyr	Tyr 420 Glu Ser Ile	405 Thr Asp Ser Gln	Val Ser Met Leu 470	Pro Ser Ala 455 Lys	Glu 440 Val Thr	Ser 425 Leu His	Gly Gln Ser Asp	Leu Leu Glu 475	Lys Phe 460 Asn	Ala 445 Lys Ile	430 Tyr Ser Lys	415 Glu Phe Pro Val	Leu Ser Gly 480
Lys Pro Gly Lys 465 Ser	Ile Ile Ser 450 Thr	Asn Leu 435 Lys Tyr	Tyr 420 Glu Ser Ile Glu	405 Thr Asp Ser Gln Leu 485	Val Ser Met Leu 470 Val	Pro Ser Ala 455 Lys Val	Glu 440 Val Thr	Ser 425 Leu His Arg	Gly Gln Ser Asp Asn 490	Leu Leu Glu 475 Lys	Lys Phe 460 Asn	Ala 445 Lys Ile Leu	430 Tyr Ser Lys	415 Glu Phe Pro Val Glu 495	Leu Ser Gly 480 Leu
Lys Pro Gly Lys 465 Ser	Ile Ile Ser 450 Thr Pro	Asn Leu 435 Lys Tyr Phe Met	Tyr 420 Glu Ser Ile Glu Val 500	405 Thr Asp Ser Gln Leu 485 Val	Val Ser Met Leu 470 Val	Pro Ser Ala 455 Lys Val Arg	Glu 440 Val Thr Ser	Ser 425 Leu His Arg Gly Gln 505	Gly Gln Ser Asp Asn 490 Leu	Leu Leu Glu 475 Lys Val	Lys Phe 460 Asn Arg	Ala 445 Lys Ile Leu Val	430 Tyr Ser Lys Lys Gly 510	415 Glu Phe Pro Val Glu 495 Lys	Leu Ser Gly 480 Leu Gln
Lys Pro Gly Lys 465 Ser Ser	Ile Ile Ser 450 Thr Pro Tyr Ser	Asn Leu 435 Lys Tyr Phe Met Thr 515	Tyr 420 Glu Ser Ile Glu Val 500 Met	405 Thr Asp Ser Gln Leu 485 Val	Val Ser Met Leu 470 Val Ser Ser	Pro Ser Ala 455 Lys Val Arg Leu	Glu 440 Val Thr Ser Gly Thr 520	Ser 425 Leu His Arg Gly Gln 505 Pro	Gly Gln Ser Asp Asn 490 Leu Glu	Leu Leu Glu 475 Lys Val Asn	Lys Phe 460 Asn Arg Ala Ser	Ala 445 Lys Ile Leu Val Trp 525	430 Tyr Ser Lys Lys Gly 510 Thr	415 Glu Phe Pro Val Glu 495 Lys	Leu Ser Gly 480 Leu Gln Lys
Lys Pro Gly Lys 465 Ser Ser Asn	Ile Ile Ser 450 Thr Pro Tyr Ser Cys 530	Asn Leu 435 Lys Tyr Phe Met Thr 515 Val	Tyr 420 Glu Ser Ile Glu Val 500 Met	405 Thr Asp Ser Gln Leu 485 Val Phe Val	Val Ser Met Leu 470 Val Ser Ser	Pro Ser Ala 455 Lys Val Arg Leu Tyr 535	Glu 440 Val Thr Ser Gly Thr 520 Ile	Ser 425 Leu His Arg Gly Gln 505 Pro	Gly Gln Ser Asp Asn 490 Leu Glu Asp	Leu  Glu 475 Lys  Val  Asn  Asp	Lys Phe 460 Asn Arg Ala Ser Gly 540	Ala 445 Lys Ile Leu Val Trp 525 Glu	430 Tyr Ser Lys Lys Gly 510 Thr	415 Glu Phe Pro Val Glu 495 Lys Pro	Leu Ser Gly 480 Leu Gln Lys Ser
Lys Pro Gly Lys 465 Ser Ser Asn Ala Asp 545	Ile Ile Ser 450 Thr Pro Tyr Ser Cys 530 Val	Asn Leu 435 Lys Tyr Phe Met Thr 515 Val Leu	Tyr 420 Glu Ser Ile Glu Val 500 Met Ile Lys	405 Thr Asp Ser Gln Leu 485 Val Phe Val	Val Ser Met Leu 470 Val Ser Tyr Pro 550	Pro Ser Ala 455 Lys Val Arg Leu Tyr 535 Val	Glu 440 Val Thr Ser Gly Thr 520 Ile	Ser 425 Leu His Arg Gly Gln 505 Pro Glu Leu	Gly Gln Ser Asp Asn 490 Leu Glu Asp Val	Leu  Glu 475 Lys  Val Asn  Asp Phe 555	Lys Phe 460 Asn Arg Ala Ser Gly 540 Lys	Ala 445 Lys Ile Leu Val Trp 525 Glu Asn	430 Tyr Ser Lys Lys Gly 510 Thr	415 Glu Phe Pro Val Glu 495 Lys Pro Ile	Leu Ser Gly 480 Leu Gln Lys Ser Lys 560
Lys Pro Gly Lys 465 Ser Ser Asn Ala Asp 545 Leu	Ile Ile Ser 450 Thr Pro Tyr Ser Cys 530 Val	Asn Leu 435 Lys Tyr Phe Met Thr 515 Val Leu Trp	Tyr 420 Glu Ser Ile Glu Val 500 Met Ile Lys Ser	Asp Ser Gln Leu 485 Val Phe Val Ile Lys 565	Val Ser Met Leu 470 Val Ser Ser Tyr Pro 550 Val	Pro Ser Ala 455 Lys Val Arg Leu Tyr 535 Val Lys	Glu 440 Val Thr Ser Gly Thr 520 Ile Gln Ala	Ser 425 Leu His Arg Gly Gln 505 Pro Glu Leu Glu	Gly Gln Ser Asp Asn 490 Leu Glu Asp Val Pro 570	Leu Leu Glu 475 Lys Val Asn Asp Phe 555 Ser	Lys Phe 460 Asn Arg Ala Ser Gly 540 Lys Glu	Ala 445 Lys Ile Leu Val Trp 525 Glu Asn Lys	430 Tyr Ser Lys Lys Gly 510 Thr Ile Lys	415 Glu Phe Pro Val Glu 495 Lys Pro Ile Ile Ser 575	Leu Ser Gly 480 Leu Gln Lys Ser Lys 560 Leu
Lys Pro Gly Lys 465 Ser Ser Asn Ala Asp 545 Leu Arg	Ile Ile Ser 450 Thr Pro Tyr Ser Cys 530 Val Tyr Ile	Asn Leu 435 Lys Tyr Phe Met Thr 515 Val Leu Trp Ser	Tyr 420 Glu Ser Ile Glu Val 500 Met Lys Ser Val 580	405 Thr Asp Ser Gln Leu 485 Val Phe Val Ile Lys 565 Thr	Val Ser Met Leu 470 Val Ser Tyr Pro 550	Pro Ser Ala 455 Lys Val Arg Leu Tyr 535 Val Lys Pro	Glu 440 Val Thr Ser Gly Thr 520 Ile Gln Ala Asp	Ser 425 Leu His Arg Gly Gln 505 Pro Glu Leu Glu Ser 585	Gly Gln Ser Asp Asn 490 Leu Glu Asp Val Pro 570 Ile	Leu Leu Glu 475 Lys Val Asn Asp Phe 555 Ser Val	Lys Phe 460 Asn Arg Ala Ser Gly 540 Lys Glu Gly	Ala 445 Lys Ile Leu Val Trp 525 Glu Asn Lys Ile	430 Tyr Ser Lys Lys Gly 510 Thr Ile Lys Val	A15 Glu Phe Pro Val Glu 495 Lys Pro Ile Ile Ser 575 Ala	Leu Ser Gly 480 Leu Gln Lys Ser Lys 560 Leu Val

_				<b>a</b> 3		~ 7	-	_		m1-	-0.1	m .	<b>.</b>	<b>.</b>	~1
	610					Glu 615					620				
Met 625	Phe	Met	Asn	Ser	Phe 630	Ala	Val	Phe	Gln	Glu 635	Cys	Gly	Leu	Trp	Val 640
Leu	Thr	Asp	Ala	Asn 645	Leu	Thr	Lys	Asp	Tyr 650	Ile	Asp	Gly	Val	Tyr 655	Asp
Asn	Ala	Glu	Tyr 660	Ala	Glu	Arg	Phe	Met 665	Glu	Glu	Asn	Glu	Gly 670	His	Ile
Val	Asp	Ile 675	His	Asp	Phe	Ser	Leu 680	Gly	Ser	Ser	Pro	His 685	Val	Arg	Lys
His	Phe 690	Pro	Glu	Thr	Trp	Ile 695	Trp	Leu	Asp	Thr	Asn 700	Met	Gly	Tyr	Arg
Ile 705	Tyr	Gln	Glu	Phe	Glu 710	Val	Thr	Val	Pro	Asp 715	Ser	Ile	Thr	Ser	Trp 720
Val	Ala	Thr	Gly	Phe 725	Val	Ile	Ser	Glu	Asp 730	Leu	Gly	Leu	Gly	Leu 735	Thr
Thr	Thr	Pro	Val 740	Glu	Leu	Gln	Ala	Phe 745	Gln	Pro	Phe	Phe	Ile 750	Phe	Leu
Asn	Leu	Pro 755	Tyr	Ser	Val	Ile	Arg 760	Gly	Glu	Glu	Phe	Ala 765	Leu	Glu	Ile
Thr	Ile 770	Phe	Asn	Tyr	Leu	Lys 775	Asp	Ala	Thr	Glu	Val 780	Lys	Val	Ile	Ile
Glu 785	Lys	Ser	Asp	Lys	Phe 790	Asp	Ile	Leu	Met	Thr 795	Ser	Ser	Glu	Ile	Asn 300
Ala	Thr	Gly	His	Gln 805	Gln	Thr	Leu	Leu	Val 810	Pro	Ser	Glu	Asp	Gly 315	Ala
Thr	Val	Leu	Phe 820	Pro	Ile	Arg	Pro	Thr 825	His	Leu	Glγ	Glu	11e 330	Pro	Ile
Thr	Val	Thr 835	Ala	Leu	Ser	Pro	Thr 840	Ala	Ser	Asp	Ala	Val 345	Thr	Gln	Met
Ile	Leu 850	Val	Lys	Ala	Glu	Gly 855	Ile	Glu	Lys	Ser	Tyr 360	Ser	Gln	Ser	Ile
Leu 865	Leu	Asp	Leu	Thr	Asp 870	Asn	Arg	Leu	Gln	Ser 875	Thr	Leu	Lys	Thr	Leu 380
Ser	Phe	Ser	Phe	Pro 885	Pro	Asn	Thr	Val	Thr 890	Gly	Ser	Glu	Arg	Val 395	Gln
Ile	Thr	Ala	Ile 900	Gly	Asp	Val	Leu	Gly 905	Pro	Ser	Ile	Asn	Gly 910	Leu	Ala
Ser	Leu					Tyr							Met	Ile	Asn
Phe	Ala 930	Pro	Asn	Ile	Tyr	Ile 935	Leu	Asp	Tyr	Leu	Thr 940	Lys	Lys	Lys	Gln
945					950	Glu				955					960
				965		Tyr			970					975	
			980			Ser		985					990		
		995				Ala	1000	)				1005	5		
	1010	)				Thr 1015	5				1020	)			
1025	5				1030					1035	5				1040
Gly	Asn	Lys	Ser	Pro 1045		Thr	Leu	Thr	Ala 1050	_	Ile	Val	Thr	Ser 1055	

Leu Gly Tyr Arg Lys Tyr Gln Pro Asn Ile Asp Val Gln Glu Ser Ile 1060 1065 His Phe Leu Glu Ser Glu Phe Ser Arg Gly Ile Ser Asp Asn Tyr Thr 1085 1080 Leu Ala Leu Ile Thr Tyr Ala Leu Ser Ser Val Gly Ser Pro Lys Ala 1100 1090 1095 Lys Glu Ala Leu Asn Met Leu Thr Trp Arg Ala Glu Gln Glu Gly Gly 1110 1115 1120 Met Gln Phe Trp Val Ser Ser Glu Ser Lys Leu Ser Asp Ser Trp Gln 1125 1130 1135 Pro Arg Ser Leu Asp Ile Glu Val Ala Ala Tyr Ala Leu Leu Ser His 1140 1145 1150 Phe Leu Gln Phe Gln Thr Ser Glu Gly Ile Pro Ile Met Arg Trp Leu 1155 1160 1165 Ser Arg Gln Arg Asn Ser Leu Gly Gly Phe Ala Ser Thr Gln Asp Thr 1170 1175 1180 Thr Val Ala Leu Lys Ala Leu Ser Glu Phe Ala Ala Leu Met Asn Thr 1185 1190 1195 Glu Arg Thr Asn Ile Gln Val Thr Val Thr Gly Pro Ser Ser Pro Ser 1205 1210 Pro Leu Ala Val Val Gln Pro Met Ala Val Asn Ile Ser Ala Asn Gly 1225 1220 Phe Gly Phe Ala Ile Cys Gln Leu Asn Val Val Tyr Asn Val Lys Ala 1240 1245 Ser Gly Ser Ser Arg Arg Arg Ser Ile Gln Asn Gln Glu Ala Phe 1255 1260 Asp Leu Asp Val Ala Val Lys Glu Asn Lys Asp Asp Leu Asn His Val 1270 1275 Asp Leu Asn Val Cys Thr Ser Phe Ser Gly Pro Gly Arg Ser Gly Met 1285 1290 Ala Leu Met Glu Val Asn Leu Leu Ser Gly Phe Met Val Pro Ser Glu 1300 1305 1310 Ala Ile Ser Leu Ser Glu Thr Val Lys Lys Val Glu Tyr Asp His Gly 1315 1320 Lys Leu Asn Leu Tyr Leu Asp Ser Val Asn Glu Thr Gln Phe Cys Val 1330 1335 1340 Asn Ile Pro Ala Val Arg Asn Phe Lys Val Ser Asn Thr Gln Asp Ala 1350 1355 1360 Ser Val Ser Ile Val Asp Tyr Tyr Glu Pro Arg Arg Gln Ala Val Arg 1365 1370 Ser Tyr Asn Ser Glu Val Lys Leu Ser Ser Cys Asp Leu Cys Ser Asp 1385 1390 1380 Val Gln Gly Cys Arg Pro Cys Glu Asp Gly Ala Ser Gly Ser His His 1395 1400 1405 His Ser Ser Val Ile Phe Ile Phe Cys Phe Lys Leu Leu Tyr Phe Met 1415 1420 1410 Glu Leu Trp Leu 1425 <210> 5 <211> 4903 <212> DNA <213> homo sapiens <400> 5

ggaggggtgg agcctccaag tcctgtctca atttagatct ctcactctgc tgttaggcgc 60

gcccatttca	gattactaaa	ctcgaattaa	gagggaaaaa	aaatcaggga	ggaggtggca	120
agccacaccc	cacggtgccc	gcgaacttcc	ccggcaacgg	actgtagccc	aggcagacgc	130
cgtccccatt	tcaggtgtcg	taagcttgaa	ttcaataact	ataacggtcc	taaggtagcg	240
	cagggcccac					300
	gtggctcccg					360
	gtgactattg					420
	ctgctcaaga					<b>,‡</b> € (
	aaaggctctt					540
	tatgagctac					600
tagtacccgc	ttatcatttg	agaccaagag	aatatctgtc	ttcattcaaa	cagacaaggc	த்திர
cttatacaaq	ccaaagcaag	aagtgaagtt	tcgcattgtt	acactcttct	cagattttaa	720
gccttacaaa	acctctttaa	acattctcat	taaggacccc	aaatcaaatt	tgatccaaca	780
	caacaaagtg					골 🖟 ()
	ggtgactggt					90.1
	tcagaatatg					31.5
ttattata	aattctaagc	atttaaatgg	taccatcacq	gcaaagtata	catatgggaa	10.00
accaataaaa	ggagacgtaa	cacttacatt	tttaccttta	teettttaga	gaaagaagaa	1930
	aaaacattta					1140
	gtaatggatt					15
	gaaattttaa					116.
	gtgttcttca					1320
	ccatctctca					1380
	cttgaagaaa					1440
	tggagcggat					1500
						1960
	gtccccaaa					1607
	cagttgaagg					1666
	tctcctagta					1740
	ccttttgagt					1800
	tccaggggac					1860
	gaaaattctt					19.50
	attataagtg					1990
	tattggagta					2040
	cagcctgact					2100
	tctaatgata					2160
	tatttaggca					2220
	acagatgcaa					
	gagaggttta					2251
					tttggctaga	2345
	ggttacagga					24.00 24.60
ttcttgggtg	gctactggtt	ttgtgatctc	tgaggacctg	ggtcttggac	taacaactac	
	ctccaagcct					3530 acaa
	gaagaatttg					359a 254a
					cttcaagtga	3646
	acaggccacc					3700
	atcaggccaa					2760 2600
					gaatagaaaa	2820
					gtaccctgaa	2880
	ttctcatttc					2940
	gatgttcttg					3000
					ttttggatta	3060
					catttatgag	31.10
					gtgcttttgg	3180
					gtttccttga	3240
					cttggcttaa	3300
aggacatcag	aaatccaacg	gtgaattttg	ggatccagga	agagtgattc	atagtgagct	3350
tcaaggtggc	aataaaagtc	cagtaacact	tacagcctat	attgtaactt	ctctcctggg	3420

atatagaaag	tatcagccta	acattgatgt	gcaagagtct	atccattttt	tggagtctga	3480
attcagtaga	ggaatttcag	acaattatac	tctagccctt	ataacttatg	cattgtcatc	354⊕
agtggggagt	cctaaagcga	aggaagcttt	gaatatgctg	acttggagag	cagaacaaga	3 තිබෙර
	caattctggg					3គីគីលិ
	attgaagttg					3720
	atcccaatta					3780
	caggatacca					3840
gaatacagaa	aggacaaata	tccaagtgac	cgtgacgggg	cctagctcac	caagtcctgt	3900
aaagtttctg	attgacacac	acaaccgctt	actccttcag	acagcagagc	ttgctgtggt	3960
	gcagttaata					4020
tgttgtatat	aatgtgaagg	cttctgggtc	ttctagaaga	cgaagatcta	tccaaaatca	4080
agaagccttt	gatttagatg	ttgctgtaaa	agaaaataaa	gatgatctca	atcatgtgga	4140
	tgtacaagct					4200
taacctatta	agtggcttta	tggtgccttc	agaagcaatt	tctctgagcg	agacagtgaa	4250
gaaagtggaa	tatgatcatg	gaaaactcaa	cctctattta	gattctgtaa	atgaaaccca	4320
gttttgtgtt	aatattcctg	ctgtgagaaa	ctttaaagtt	tcaaataccc	aagatgcttc	4380
agtgtccata	gtggattact	atgagccaag	gagacaggcg	gtgagaagtt	acaactctga	4440
agtgaagctg	tectectgtg	acctttgcag	tgatgtccag	ggctgccgtc	cttgtgagga	4500
tggagcttca	ggctcccatc	atcactcttc	agtcattttt	attttctgtt	tcaagcttct	4500
gtactttatg	gaactttggc	tgtgatttat	ttttaaagga	ctctgtgtaa	cactaacatt	4620
tccagtagtc	acatgtgatt	gttttgtttt	cgtagaagaa	tactgcttct	attttgaaaa	4680
aagagtttt	tttctttcta	tggggttgca	gggatggtgt	acaacaggtc	ctagcatgta	4740
tagctgcata	gatttcttca	cctgatcttt	gtgtggaaga	tcagaatgaa	tgcagttgtg	4800
tgtctatatt	ttcccctctc	aaaatctttt	agaattttt	tggaggtgtt	tgttttctcc	4860
agaataaagg	tattacttta	gaaaaaaaaa	aaaaaaaaa	aaa		4903